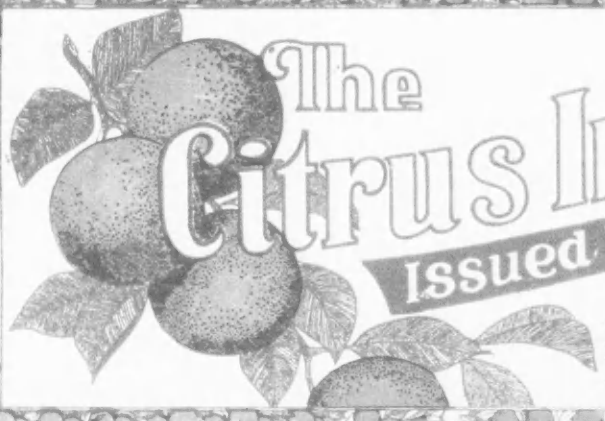

The Citrus Industry

Issued Monthly

Representative of every interest
Representing no special interest

Vol. 13, No. 12 TAMPA, FLORIDA, DECEMBER, 1932 15 Cents a Copy

Another Milestone

With this issue The Citrus Industry completes it's thirteenth year as Florida's exclusive citrus publication. It will continue to provide the greatest industry in the state with authentic information relative to all phases of that industry.

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Over a period of years Ideal Fertilizers have won for the name a position of Leadership. Some people dislike the forthrightness of that title—they may be right. But as applied to Ideal Fertilizers the word has its origin not from arrogant claims, but from an accurate tabulation. It was true forty years ago and is true today that more Ideal Fertilizers are used in Florida than any other brand.

The consistent record of Ideal Fertilizers, plus their unprecedented quality, explains this brand's result-producing power as a plant-food for Florida crops. That is why Ideal Fertilizers are a recognized leader in the field of fertilizer. Back of this Leadership lies the serene confidence of growers in every part of Florida. It is an unwritten assurance that all users of Ideal Fertilizers buy with the brand. Confidently growers apply Ideal Fertilizers to their groves and fields. Confidently they await the rich and healthy crops their experience with Ideal Fertilizers has taught them to expect.

Year after year the Wilson & Toomer Fertilizer Company has enjoyed this unchallenged position of Leadership. Forty years ago the company was founded on the twin ideals of integrity and service. Today these ideals are accepted with confidence. Growers whose fertilizer problems are increasingly important because of existing economic conditions realize the value of our knowledge and service. They want the "Most value per dollar" invested in fertilizer and get it. That is our reason for Leadership. To growers who want that before-hand confidence that Ideal Fertilizers bring we offer a thoroughly tested brand to meet the exacting requirements of every Florida soil and crop. Our field representatives are at your command; or we will be glad to have you communicate with us direct. Wilson & Toomer Fertilizer Company, Jacksonville, Florida.

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MOST VALUE PER DOLLAR

IDEAL FERTILIZERS

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Plant Quarantine Effective Strong Says In Annual Report

Changes In Farm Practices Cut Cost Of Insect Control

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Our Birthday
Editorial

Impressions
By The Impressionist

He was the first to try it . . .

Mr. John L. Olson of Dundee.

A man with a thousand acres of citrus groves in his care has a real job on his hands. He doesn't overlook any opportunity to improve the conditions and production of the trees in his charge.

Such a man is Johnnie Olson, citrus grower and grove manager, of Dundee. The success of his groves and the increasing acreage being placed in his care are tributes to his ability and good judgment.

Several years ago when Agrico, the fertilizer with the extra plant foods, was introduced in Florida by this Company, Mr. Olson bought a few tons for experimental purposes to see just how good it was. What did he find out? This recent letter from him gives some interesting information.

Dundee, Fla., Nov. 14, 1932

Gentlemen:

Four years ago I bought a few tons of Agrico for Citrus to use in an experimental way. This was the first Agrico, so I have been told, that was used on citrus trees in this State. Frankly at that time I had little confidence regarding the unusual, extra plant food elements in this new fertilizer.

After testing Agrico thoroughly for two years I am convinced that it has something other fertilizers haven't got. Where Agrico was used the trees were healthier and yielded more and better fruit and in every way demonstrated the superiority of this fertilizer. Today more than 50 per cent. of the groves I fertilize and care for are "Agrico groves" and I am often told that these are the best groves in this section. My customers now demand Agrico because they have seen the results in their own groves. As a matter of fact the use of Agrico for Citrus is getting to be common talk among the growers in this locality and I know many will use it this year who have not done so before.

Conditions in the fruit business, as everyone knows, have been bad and growers weigh very carefully any additional cost in fertilizers. But as far as my growers are concerned they have found Agrico to be worth much more than its small extra cost.

Very truly yours,

JOHN L. OLSON.

There's a reason for the better results obtained with Agrico. In addition to the usual nitrogen, phosphorus and potash contained in ordinary fertilizers, *Agrico contains extra plant foods that provide extra crop-producing power.* It represents a step forward, a real improvement in fertilizers. Agrico is made only by The American Agricultural Chemical Company, makers of the well-known Bradley, and Bowker Brands.

If you have already decided upon the fertilizer you are going to use on your next application we don't ask you to change your mind, we only ask that you give Agrico a fair trial on at least a part of your grove and compare the difference in results. Remember Mr. Olson's experience represents performance in *not one but a variety of groves* and *not just one application but applications covering a period of years.*

* * *

This is the 48th year that this Company has been making fertilizers especially adapted to Florida conditions. During this time we have had a great deal of experience with Florida's various crops and soils. To make this experience available to growers we organized our Service Division. This department, through our field men, can be of real help to you. Its service is at your disposal without charge. A call to our office will bring a capable service man to your grove.

HORACE BOWKER, *President.*

The AMERICAN AGRICULTURAL CHEMICAL CO.
Makers of BRADLEY'S, BOWKER'S and AGRICO Fertilizers
PIERCE, FLA.

AGRICO—the fertilizer with the EXTRA plant foods

The Citrus Industry
EXCLUSIVE SPECIALIZED CITRUS PUBLICATION
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Representing no special interest

Vol. 13 TAMPA, FLORIDA, DECEMBER, 1932 No. 12

The Value Of Research To Agriculture

By RAYMER F. MAGUIRE

ADDRESS DELIVERED AT THE UNIVERSITY OF FLORIDA

Agriculture — using that term broadly, is now, and probably always will be, Florida's primary industry. The prosperity of every man and woman earning a living in Florida or deriving support from investment in this State, whether they know it or not, or whether they directly engage in agriculture or not, is largely dependent upon the success of Florida's agriculture. With this thought and realization frequently in my own mind, the question recurring time and again is, "Are we as citizens of this State keenly alive to the value of research to agriculture?" When I was paid the compliment of being asked to address you I chose as the subject for my remarks, "The Value of Research to Agriculture." I might well have added "In Florida," for I am thinking now in those terms.

It is well that we consider for a moment our climatic conditions and our geographical location. From the standpoint of climate, ours is tropical and semi-tropical—much like that of Cuba and the West Indian Islands in general, Central America and the northern part of South America. Our climate and soil, as are theirs, are productive of luxurious growth, and we, like them, are subject to many kinds of plant and fruit disease and insect pests which do not thrive in colder sections of the United States. Experimentation and research work carried on in many other sections are not of great value to us. We are peculiar unto ourselves, in that our problems in agriculture are generally different from such problems in other sections of this country. Therefore, we must chart our own course, except when we can profit by the experiences of other tropical countries.

Geographically, the Florida peninsula extends to the Southernmost point of the United States. If you commence at the most Easterly point of Florida and travel due south you will cross Cuba and Panama but will barely touch the coast of Ecuador, the most Westerly point in South America with the amazing progress being made in air travel it does not require a dreamer to visualize the part Florida is to play in international transportation and travel between the United States and the West Indian Islands, Central and South American countries. The West Indian Islands, respectively, are now, by air travel, only a matter of minutes and hours from our coast. Central and South American points, only a day's hop. Miami undoubtedly has the greatest international airport in the world. During the months of February and March 432 airplaines (an average of more than seven a day) arrived in Miami direct from foreign ports. During the current year many hundred passenger and express laden airplanes will arrive in Florida from Central and South America and the West Indian Islands; and where there are now hundreds arriving in the course of a year, it is reasonable to assume that within three to five years there will be thousands. The opportunities afforded Florida in being the necessary channel of this rapidly growing international travel and transportation challenges the imagination. It is no greater challenge than the fact that an airplane, the "Cape Cod," could take off from New York City, with only two persons aboard, and make its next stop 49 hours later in Turkey, and that was an achievement of a few months ago. But the opportunities here afforded, like all opportunities, are burdened with hazards and obligations, for every ship sailing into a Florida port from Central or South American waters, and every airplane that gracefully glides to the ground of a Florida airport from or South America and the West Idies, are the potential carriers of destructive plant pests and disease not now extant in Florida.

What is the value of Florida's agricultural investments? It is hard to determine. It has often been stated that Florida's citrus groves alone carry with them a capital investment of $300,000,000. It seems

(Continued on page 8)

The Lime In California

BY H. J. WEBER

IN CALIFORNIA CITROGRAPH

Some interest has been shown recently in the grownig of limes in California and several small plantings have been made in different sections of the state. The lime has been grown in the state for many years and over a large area, but usually, only a few trees in a place. In the early 70's it was extensively planted and at that time bid fair to occupy a prominent place in the markets. It was found, however, to ripen its fruit almost wholly in the cool weather of winter and early spring when acid fruits are little in demand, and to be so tender that it was frequently injured by frosts. Its culture as a commercial fruit was therefore gradually abandoned.

Small quantities of limes are used in California and Florida, and in the larger cities of the United States. In the western states these have been supplied almost wholly from the west coast of Mexico, and in the eastern states the supply has been produced mainly in Florida and the West Indies. In Florida the chief lime produced is the so-called Mexican or West Indian, which has been grown almost entirely on the coastal islands or "Keys" south and southeast of the mainland, where the culture has been carried on for many years. At the present time there is a planting of approximately 1,000 acres on the Keys. Very small plantings exist in other parts of Florida, but are limited mainly to yards for home use.

Recently a small industry in the production of Tahiti or Persian lime has grown up on the mainland of Florida in the lower southeastern section of the state. Probably from 800 to 1,000 acres have been planted to this variety in the section around Homestead. The frunts are said to be consumed mainly in Florida and are used largely as a substitute for lemons. Small quantities of this lime are shipped to certain northern markets which will take large fruited limes.

No reliable data are available as to the quantity of limes produced or consumed in the United States, but the total is certainly small. The information relative to imports is also vague. Data collected by the Calavo Growers of California and kindly communicated by George B. Hodgkin, general manager of that association, indicate that the total imports into the United States last year (1931) amounted to approximately 5,000,000 pounds. Of this amount about 2,000,000 pounds came from Mexico and the remainder from the West Indies, primarily Dominica.

Uses of the Lime

In countries where limes are grown and the fruits are well known they are used for various culinary purposes such as the flavoring of jellies, jams, marmalades, and like products, and as a garnish especially with fish and meats. The fruits shipped for commercial sale in the United States are now used almost wholly in drug stores, confectioneries, and like places in the preparation of such drinks as limeade and lime rickey. Limeade is reognized as a highly flavored and distinctive drink which is preferred by some people to lemonade.

At one time the lime was commonly used in saloons in the preparation of mixed drinks, and the closing of the saloons cut off a considerable part of the demand for them. It is interesting to note that one commentator on the uses of the lime facetiously writes, "The limes that are purchased in grocery stores and taken home, I believe, are used very largely by alchemists in an effort to make gasoline and wood alcohol drinkable."

Limes and lemons are used for about the same purposes. The lemon is much more widely known and its uses are understood by all housewives and dieteticians. It is well known in all markets and can be obtained regularly in all seasons of the year in practically every market in the country. The lime therefore has little chance to supplant the lemon unless it can be shown to possess same special quality. The information now available, as a whole, does not indicate that it posseses any such distinctive qualities that render it especially desirable.

Lemons are being used in an increasing degree in the care of the teeth, hands and face, and as a hair rinse, while the lime has never been considered for such uses.

The lime is more tender and subject to frost injury than the lemon and its cultural demands are little understood.

In view of the fact that the lime is in general so similar in its uses to the lemon and that the lemon industry is already so well established it is difficult to develop any argument favoring the establishment of a lime industry in California. If, however, one draws a tasteless "profane" cantaloupe for breakfast and flavors it with a little lime juice and sugar, he will find it easy to develop enthusiasm for extending lime culture. The writer feels that he is conferring a boon on humanity by mentioning this use of the lime.

It should also be mentioned that both limes and lemons are valuable primarily because of their high acidity, and lime juice is approximately 1½% richer in acid than lemon juice. The lime is thus the most compact package of highly flavored acid juice of any citrus fruit. This is a distinct advantage in its favor.

It is likely that there will always be a demand for a certain quantity of limes but it is probable that this de-

TABLE 1.

Composition of Five Varieties of Limes Growing at the Hawaii Station.

Variety	Average Weight Per Fruit	Proportion of Rind and Pulp	Proportion of Seeds	Proportion of Juice	Composition of Juice: Total Solids	Reducing Sugar	Citric Acid	Protein
	Grams	P.ct.	P.ct.	P.ct	P.ct.	P.ct.	P.ct	P.ct.
Kusaie	61.5	39.36	2.29	58.35	9.0	0.81	6.75	0.381
West Indian or Mex.	26.9	44.55	0.86	54.59	8.7	0.22	7.45	0.281
Tahiti*	155.0	41.42	0.11	58.47	9.5	0.77	7.43	0.399
Rangpur	84.0	49.0	1.37	49.43	8.4	1.17	6.10	0.375
Bearss	124.2	41.22	0.00	58.78	11.6	1.69	8.32	0.338

*The Tahiti "seedless" lime occasionally possesses some seeds, possibly due to pollination with near varieties blooming at the same time.

mand will be comparatively limited and difficult to extend greatly. If sufficient quantities are grown to push the lime out of the novelty class, the fruits will probably not command a sales value equal to that of the lemon and the lemon is apparently more frost resistant and easier to grow. Californians, furthermore, should not lose sight of the fact that for lemon culture they apparently have the best adapted section in the United States, while for lime culture certain other sections would appear to be fully as well adapted or possibly superior. This is an important factor worthy of very serious consideration.

Composition of Fruits

The lime is valued primarily as a highly flavored acid fruit. According to Chatfield and McLaughlin1 fresh lime juice averages 7.7% acid (calculated as citric) and 0.3% sugar (as invert), while the juice of the lemon on the same basis averages 5.96% acid and 2.3% sugar.

Table 1, quoted from Pope2 gives the comparative chemical composition of the fruits of different varieties of the lime.

It will be noted, in comparing the data in Table 1, that the composition of the Bearss stands out as rather strikingly superior to that of the other varieties. It is recorded as highest in proportion of juice, total solids, sugars, and acid, and as lowest in proportion of seeds. Its only apparent disadvantage is its average weight but even this is less than that of the Tahiti, the only other nearly seedless variety.

It is inteersting to note also that the average acid content for all varieties in this table is 7.21% and that the sugar content averages 0.93%.

Climatic Requirements

In general the lime thrives where other citrus fruits are grown, but more particultarly in sections where the lemon is most successful. It is one of the most tender of the citrus species and is therefore subject to frequent frost injury. Its culture should be undertaken only in sections that are known to be particularly warm and free from severe freezes. It is more tender and subject to frost injury than the lemon, and places where the temperature is likely to fall below 28° F. should not be used for lime plantings.

The soil and water requirements, so far as known, are practically the same as for other commercial citrus varieties.

Varieties

People considering the planting of limes are likely to be in doubt as to what varieities to use. The following comments may be of help in considering the comparative value of different varieties in relation to commercial market requirements.

Mexican—Fruit, round to obovate or oval; size, small, length 1.1 to 2 inches, diameter, 0.90 to 1.75 inches, quite variable; apex, rounded, usually with small nipple, smooth; base, rounded, usually smooth but sometimes slightly fluted around stem, rarely with a slight neck; skin, smooth and leathery, very thin, 1-32 to ⅛ in., slight depressions over largest oil segments, 10 to 12; membranes, thin glands; color, light lemon yellow; and tender; pulp, light greenish yellow, fine grained with small pulp vesicles, very juicy and tender, melting; flavor, strong, typical lime, very acid; axis, very small, averaging about ⅛ in. in diameter, usually solid; seeds, few, 5 to 8, small; tree, small and spreading, a shrubby bush, 10 to 15 ft. high; twigs and branches, ascending, with small, slender, sharp thorns; leaves, small, elliptical to oblong, blunt pointed; season of maturing, late fall to spring and to some extent throughout the year.

This is a small fruited lime and the one best known in the markets of the United States. In Florida it is known also as the "Key lime" and "West Indian lime." It is the variety which has been grown most commonly in California, Florida, the West Indies Islands, and Mexico.

It should be stated that this variety has been largely propagated by seeds and that buds for propagation have been taken from many different seedlings in different sections. The variety thus shows considerable variation, and cannot properly be considered as a variety in the ordinary sense. It is a mixture of similar types of different origin. When budded trees are used, the buds are taken from good local seeedlings or from budded types. In Mexico all lime trees are said to be seedlings and to produce fruit remarkably uniform in size. It is probable that the seed embryos are largely produced through budding from the mother tissue (apogamy), a phenomenon common to many citrus varieties and species, rather than by normal sexual fertilization.

While small and somewhat seedy, the fruits are of high quality. Where the fresh fruit is used in mixing drinks in drug stores and confectionaries, the small size of the Mexican one fruit is sufficient for a glass of has been found to be an advantage as are larger than necessary for a single ade, whereas the large seedless limes glass or serving. This means that one-half of a fruit will be lying around until another serving is prepared. A cut fruit exposed to the air becomes bitter in about an hour and if discarded will make the cost per drink too great to the dispenser.

In California 9 to 13 fruits to the pound when picked, or 1½ to 1 2-3 inches in diameter is considered as perhaps the most desirable size while in New York a slightly larger fruit is apparently preferred. The preferred size varies for different markets but it is recognized that in general the Mexican most nearly fulfills this requirement of any variety, though a slightly larger and seedless fruit would be very desirable.

The Mexican lime in places where it can be successfully grown makes an excellent hedge plant, and is frequently used in that way.

Bearss.—Fruit, obovate to oblong, lemon-shaped; size, large, length, 2 to 3 in., diameter, 1.5 to 2.4 in., average 1.8 in.; apex, nippled; base, rounded, sometimes slightly necked and fluted around stem; color, light lemon yellow; skin, thin, ⅛ to 3-16 in., curling down to 1-16 in., smooth with shallow depressions over largest oil glands; segments, 8 to 12, usually 10; membranes, thin and tender; pulp, very juicy, finely grained, of greenish-gray color; flavor, true lime, very acid and of excellent quality; axis, very small, round or irregularly oblong, about ¼ in. in diameter, solid or becoming semi-hollow in old fruits; seeds, none; tree, large, 15 to 25 ft. high, a vigorous upright grower with ascending branches; nearly thornless; foliage, dense, leaves comparatively large; maturing main crop in late spring but ripening to some extent throughout the year.

The Bearss lime, known also as the "Bearss Seedless," is well known in California and in recent plantings this variety predominates. It has has many characters to recommend it over any other variety, chief among which are: seedlessness, high acid content, and richness in flavor. It is more cold resistant than the Mexican, is a stronger, more rapid grower produces a larger, upright growing tree, is nearly thornless, and is apparently a heavier yielder, ripening its main crop rather later in the spring.

(Continued Next Month)

Carbon-bisulfide is cheap stuff, but it's almost invaluable when it saves about 20 percent of the stored corn crop from weevils, says J. R. Watson, entomologist with the Florida Experiment Station. Ten pounds per 1,000 cubic feet of space, in a tight crib, will do the wark. Repeat the application if weevils show up again.

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1. Chatfield, Charlotte, and Laura I. McLaughlin. "Proximate composition of fresh fruits". U. S. Department of Agriculture, Circular 50, 1-19, 1921.
2. Pope, W. T. "The acid lime fruit in Hawaii". Hawaii Agri. Exp. Sta. Bul. 49:1-20, 1922.

THE VALUE OF RESEARCH TO AGRICULTURE

(Continued from page 5)

conservative to estimate that vegetable lands and general farming also should carry with it an investment of not less than $300,000,000; and that investments directly dependent upon Florida's citrus industry, Florida's vegetable industry, Florida's general farming enterprise, Florida's live-stock and those unimproved lands which are of value only as farming and live-stock grazing, must have an added value of $400,000,000. I believe it conservativley safe to say that the direct and indirect investment in Florida agriculture is not less than one billion dollars. The Florida State Marketing Bureau gives the following estimate of gross values to Florida:

> For its 36,000,000 boxes of citrus fruits produced during the past season, $70,000,000.
>
> The gross value to Florida of its 53,000 carloads of vegetable products for the year just past is estimated at $30,000,000.

Here alone we have a round hundred million dollars. It would seem that if Florida fruits and vegetables alone are worth $100,000,000, that all other products combined might have a gross value to the State of $50,000,000. If the above figures are conservative, and I believe them to be, then we have directly and indirectly invested in agricultural enterprises in the State a billion dollars; and we had a gross income to the State for the year just past of $150,000,000. With such an investment and such an income, the following questions are of first importance to the people engaged in agriculture in the State of Florida, in fact, to all of the people of Florida:

1. What concerted effort is Florida now making to deal effectively with plant diseases and plant pests now existent in the State?
2. What studies of the soil are we making to increase production and lower the cost thereof, and to introduce new and adaptable crops?
3. What effort is being made to advance and safeguard our extensive live-stock interests?
4. What concerted study and effort is being made to protect our producers against plant diseases and insect pests now known to exist in other tropical countries but which have not gained entry into Florida?
5. What efforts are we making to second and third class fruits, vegetables and farm products in the way of by-products?

In a single question, what is Florida doing in the way of research in agriculture to safeguard our present investments and promote our future prosperity?

Some may ask, "What has been the value of past research to Florida agriculture?" By way of parenthesis, it may be remarked that in so far as support from Florida is concerned, the facilities furnished for investigation and research have occupied the position underprivileged children. They have been overworked and underfed, and during the difficult times their support has been painfully reduced. Notwithstanding that fact, remarkable contributions have been made. Permit me to recite some of the more striking examples:

Those of us who have lived long in the Florida citrus belt vividly recall when the white fly made its appearance, when nobody knew how to control its ruinous effects, and it seemed that this pest would eliminate the citrus industry. Research discovered, developed and propagated native fungi, which fungi is now used almost exclusively to control and eliminate the white fly. The results incident to this research have been so successful that the white fly is no longer considered a menace to citrus fruit production.

About the year 1915 Citrus Canker made its appearance in Florida. There we had an enemy which would not only ruin the citrus fruit but destroy the trees. Many of Floridas fine groves were absolutely destroyed by its inroads. Again concerted research, coupled with aggressive action brought thorough results. So thorough was the eradication of citrus canker from Florida that it has now been a matter of several years since it has been known to exist in the State.

Only a few years ago the Florida Experiment Station secured, and planted, a small number of Tung Oil trees. After various experiments the commercial value of this industry became apparent. Today we have in Florida 9,500 acres of commercial plantings. Research is being actively continued in this field, and we are here producing a new crop, which does not in any way compete with other Florida crops.

I have named but a few of the results showing the value of past research to agriculture. These things have been accomplished, in so far as Florida is concerned, exclusively through the Agricultural Experiment Station of this University. There are now under way at your Experiment Station 147 research problems. They cover certain problems of the cattleman, the citrus grower, the tobacco producer, the cotton farmer, the strawberry grower, the watermelon farmer, the tomato and potato growers, the avocado producer, the ower of pecan orchards, the owners of undeveloped lands, and others. That the producers of Florida appreciate this service and are keenly alive to its value is evidenced by the fact that the Experiment Station now answers 60,000 letters a year, dealing with individual problems of Florida farmers and growers. The monetary value of this research is difficult to measure, but it is safe to say that the results here attained have added $25,000,000 a year to the income of this state. Florida has made no investment which has yielded greater returns than the investment made in research at the Experiment Station of the University of Florida. The knowledge assembled at the Experiment Station is disseminated through the College of Agriculture and through the County Agents and Home Demonstration Agents of the Agricultural Extension Service directly to the growers of Florida. The Experiment Station also transmits the result of its research through its many thousands of personal letters, written directly to the farmer.

There has been a fortunate coordination in Florida, under the direction of the University, of the work of the Experiment Station, the Colllege of Agriculture and the Agricultural Extension Service; and this work, inter-locking with that of the State Plant Board, has enabled this State to achieve results at a minimum cost without over-lapping expenditures. The fact that the same executive directs the work of the Satte Plant Board, the Experiment Station, the College of Agriculture and the Agricultural Extension Services makes this coordination possible.

The foregoing answers questions 1, 2, and 3.

We cannot answer question 4 satisfactorily. Extensive research is not being engaged in to protect our producers against plant diseases and inseet pests now known to exist in other tropical countries but which have not yet gained entry into Florida. A decided effort is being made to protect against the entry of new plant pests and diseases into Florida, but that effort is not adequate. You ask, why. The only answer is that the State of Florida, acting through its Legislature, has not adequately provided means. The only agency which Florida furnishes for the purpose of carrying on research is the Agricultural Experiment Station of the University of Florida. During the bi-

ennium 1929-1931 Florida provided for the Experiment Station at the rate of $399,395 per year. Recognizing the vital necessity of reducing expenditures, the State Board of Control asked our Legislature to appropriate for this urgent work the reduced sum of $373,330 per year. The Legislature declined to meet this request but did appropriate $330,233 per year with which to carry on all of the work of the Experiment Station and its branches. It is an absolute impossibility for the Experiment Station, with this sum of money, to meet satisfactorily the present pressing problems of agriculture in this State, let alone deal with future hazards. The State Plant Board, through its quarantine inspection, grove inspection, nursery inspection, and apiary inspection, is endeavoring to protect against the spread of those plant diseases and plant pests now existent in some parts of the State, and to preclude the entry into Florida of added pests and plant diseases. Our quarantine inspection has on 279 different occasions precluded the entry into Florida of major plant pests of the most dangerous kinds, and as follows:

Fruit flies	41 times
Black fly	112 times
Green scale	126 times

During the period 1915 to 1930, inclusive, 75,000 vessels entering Florida ports were boarded and examined by our Quarantine Inspectors. That the number of ships entering Florida is rapidly increasing is evidenced by the fact that of the 75,000 ships, 7,175 came in during the year 1930, and we must now add to these inspections, inspections of the rapidly increasing number of airplanes arriving in Florida from foreign ports. To carry on the important work of the State Plant Board it asked the Legislature for an appropriation for the next two years at the rate of $262,408 per year. This was not an increased amount over previous years but was the absolute minimum with which the Plant Board felt that it was possible to protect Florida's vast investment in agriculture. The Legislature answered this request with an appropriation of $185,000 per year. It is sincerely hoped that decreased efficiency which must result from this lack of funds will not require the expenditure of a vastly greater amount in the future.

The fruits and vegetable producers of Florida, I am sure are not in any frame of mind to deal with another major pest. Too fresh in our minds are the great losses incurred and suffering endured by reason of Mediterranean fruit fly and its necessary eradication. We now realize full well that the Federal Government, acting through the Plant Quarantine and Control Administration of the Untied States Department of Agriculture can and will say when, how, where and under what conditions our fruits, vegetables and farm products may move into the channels of Interstate Commerce. We know full well that the Mediterranean fruit fly cost this State, directly and indirectly, millions upon millions of dollars. I for one believe that had the State of Florida, knowing that it was susceptible to infestation by the Mediterranean fruit fly, made an intensive study of its habits and a study of the means for combatting and exterminating it that we might have waged the war against is just as successfully and at far less cost in loss and suffering. The direct expenditures by the State of Florida, despite many rash statements to the contrary, were only $381,475.95. In the waging of the same war the Federal Government, realizing the seriousness of the menace to all southern fruit and vegetable producing areas, expended $6,471,161. But the money thus expended by State and Federal forces was but a small proportion of the cost of the Mediterranean fruit fly to the people of this State. It has been charged that in this fight to eradicate the Mediterranean fruit fly that many mistakes were made. It would be useless to deny that mistakes were made. With such large scale operations organized over night with the employment of thousands of men, and the expenditure of huge sums of money, mistakes are necessarily made and property rights are violated. But when you are at war victory is the goal at stake. To achieve that end lines of communication may be cut: bridges may be blown up; towns destroyed and laws violated. In so far as serious monetary consequences are concerned we people of Florida were more nearly engaged in war when we were combatting the Mediterranean fruit fly than we have been at any other time. It is a compliment to the forces in command and to the cooperation and self sacrifice on the part of the people of this State that on the 15th day of November, 1930, after this enemy had been discovered on April 6th, 1929, it was officially declared by the Secretary of Agriculture of the United States that we had not only licked the Mediterranean fruit fly but had apparently exterminated it, and this in face of the fact that there were more than 1,000 infested citrus properties in Florida.

We cannot satisfactorily answer question 5. The State as yet is not making sufficient effort to develop a use and market for our second and third grade fruits, vegetables and farm products, and again the reason is that there are no funds with which to carry on such efforts. Probably the most outstanding work of necessity at the moment is the development of proper methods of freezing fruits and vegetables and fruit and vegetable juices.

The Experiment Station here had engaged upon such research. It had already determined the temperatures at which citrus fruits might be kept for a long period of time. It was determining what varieties of citrus fruits were most susceptible to pitting in cold storage and the temperature which should be maintained to avoid pitting. It had arrived at the point where it was known that tangerine juice as a frozen product might be kept for a long time and yet when prepared for use this juice would be just as palatable and delicious to the taste as though it were absolutely fresh. The experiment Station had determined the fact that an admixture of tangerine juice and orange juice would assist in keeping palatable the orange juice and produce a much more refreshing and delightful drink. An appropriation was asked of the Legislature to continue this vital work. However, the appropriation was refused.

When we think in terms of what research has meant to Florida agriculture in past years, when we visualize what it can mean in promoting the future prosperity and happiness of our people, does it not seem "penny wise and pound foolish" to give it other than generous support. In order to meet the demands of research in agriculture and to meet them properly, the trained men engaged in that field should be doubled. In order to safeguard this State by eliminating plant diseases and plant pests now existing and precluding the entry of others, our forces should be largely increased. It is believed that most satisfactory results can be obtained, that pressing problems may be solved and knowledge accumulated to meet the contingencies of the future with an expenditure of $1,000,000 a year.

When the American Telephone and Telegraph Company, headed by men who must think in terms of net dividends to stockholder, spends in research and development for future improvement $5,000,000 a year for each $1,000,000,000 in invested capital, can it be charged that Florida would be reckless in the expenditure of money by spending as much as a

(Continued on page 24)

The Citrus Industry

with which is merged The Citrus Leaf
Exclusive publication of the Citrus Growers and Shippers

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OUR BIRTHDAY

With this issue The Citrus Industry closes its thirteenth year of publication. During all of this time the publication has been under the same ownership and the same management. There has been no interruption in its devotion to the citrus interests of Florida, nor in its efforts to be of service to citrus growers and shippers. Having no interests outside the citrus field, The Citrus Industry has concentrated its efforts on its particular line until today it is recognized as the outstanding citrus journal in the Eastern field.

The Citrus Industry as a publication, in common with the citrus industry as a commercial undertaking, has had its ups and downs, but it has never faltered in its faith in the ultimate success of the industry nor in its belief that the problems confronting the citrus growers of Florida would be solved and solved right—and that such solution would be brought about by the efforts of the citrus growers of Florida themselves. The Citrus Industry is still firm in that belief.

Having survived thirteen years of strenuous, and at times precarious existence, The Citrus Industry is about to enter upon a new year and a new volume confident that the future holds better things for the citrus growers of Florida and with a determination to continue its efforts along the same lines which have marked its policy in the past.

ENCOURAGING!

There has been less than the usual complaint of the shipment of green fruit to market this season. This, too, in the face of the fact that the Florida citrus crop is several weeks later in maturing than usual. Doubtless there has been some unripe fruit shipped from the state. Nothing but a miracle could prevent that condition. But there has been but little general complaint from the consuming markets.

The alertness of the state inspection officials aided by the hearty co-operation of most shippers and growers has probably been the primary reason for this comparative absence of complaint. The extension of the inspection period to December 20, taken at the insistence of the majority of the shippers, was another step in the right direction, and tends to hold back green fruit shipments until nature has had an opportunity to do its work.

After the inspection period has expired, there will still be unfit fruit in Florida groves. It will then be up to the growers and shippers to protect their own interests and the reputation of Florida citrus fruits by voluntarily continuing the work of eliminating this unfit fruit from shipments.

EFFECTIVE CO-OPERATION

There are several kinds of co-operation, if one is to judge by the diversity of "set-ups" in the various co-operative organizations functioning or attempting to function in the agricultural, horticultural and industrial world.

But, when reduced to the final analysis, there are just two kinds of co-operation—the kind which co-operates in name only and the kind which actually co-operates to the advantage of its members. H. R. Holley, director of the Giannini Foundation of Agricultural Economics, evidently had something like this in mind in speaking of the orange industry.

Orange growers cannot, individually or collectively, affect the general commodity price level of the country, the purchasing power of consumers or the supply of competing fruits, declares H. R. Tolley, director, in reporting on the accomplishments of the Giannini Foundation of Agricultural Economics. "But, through advertising and trade promotion, growers can influence the demand for oranges, while all the marketing agencies working together can control the quantity and quality of fruit sent to market. Our study showed that, with the present low general price level and low consumer buying power, a program of withholding the lower grades and undesirable sizes from the market would be beneficial, provided all growers and all marketing agencies participated in it," declares Dr. Tolley.

There is really nothing new in this statement. It has frequently been said before by many men in many industries, but it gains weight coming from such an authoritative source. The offering of low grade, unripe or unfit fruit, or fruit of poor appearance in competition with fruit of good quality and fine appearance always has and always will operate to lower the price of the good fruit. Every grower and every shipper knows this, yet, year after year we see that same disregard for known facts in the shipment of off-grade citrus fruits to the markets

Florida is not the only delinquent in this matter, California, Texas and Arizona must bear their share of the blame. But Florida cannot escape its share of the responsibility, and the grower himself is the primary culprit, for he has it in his power to stop at once and forever the shipment of fruit of poor quality and poor appearance. It would be dollars in the pockets of the growers if every fruit of inferior quality, poor appearance or undersirable size were left to rot upon the ground, and only such fruit as is in demand were permitted to find its way to market.

Trees and plants have stomachs!

¶ Sounds funny, doesn't it? But it's a fact that the duties which your soil must perform to insure vigorous plant growth are relatively the same as the functions of the human stomach. ¶ Before you can receive nourishment from the food you eat, it must be properly digested in the stomach. So must the soil assimilate plant food in order for it to be taken up by your trees and truck crops. ¶ Experience has taught us that cheap, poorly prepared foods, if taken into the stomach, cause harmful reactions which frequently result in serious illness. It's the same with your soil. Improper combinations of fertilizers leach away essential elements, leaving the soil sterile and unproductive – burned out! ¶ There's an easy way to be sure that your trees and plants are properly nourished. Use Gulf Brands of Fertilizers for both grove and truck farm. Gulf Brands are scientifically blended to insure lasting soil energy.

The GULF FERTILIZER CO.
TAMPA, FLORIDA

Stocks at convenient points throughtout the State

IMPRESSIONS

By the Impressionist

A few days after Thanksgiving we paused at Apopka, and entered a drug store. By the bye, Apopka seems to be crawling into the reminisences rather frequently of late; but that has nothing to do with this yarn. Coming out we stood for a moment on the sidewalk, and our attention was attracted by an Ungodly Sight which was entering the store. It was short. It was thick. It was topped by an ancient hat; wore a heavy sweater, probably white when purchased, but we would not care to be positive on that point; ancient khaki riding breeches and the same selection of boots usually favored by boys who wear old riding breeches completed the costume. When the aforesaid Ungodly Sight asked for a Tampa Tribune with an Ybor City accent our interest picked up. Our first guess that it was a Lake county 'shiner out of the wilds of Blackwater Hammock must be wrong. It must be some ace Tampa bootlegger heavily disguised. Then the Ungodly Sight turned about and headed for the sidewalk; and underneath that chapeau diablo was grinning the friendly features of none other than Bill Waring of Tampa, the widely known treasurer of the Lyons Fertilizer Co. Up with an associate to join Bill Goding of Apopka duck hunting out on the Apopka marshes. No luck. No ducks.

Riding along a dozen miles out of Apopka we reasoned it out. The hunting party had gotten discouraged and quit too soon. Quite likely the ducks sighting the Waring person had flown away quickly. Probably to carry the news of this strange sight to other ducks in other locations. Of course, this left the Apopka marshes duckless. But we felt sure that if the hunters had only persisted until afternoon not only would these messenger-ducks have returned, but there would probably be thousands of others accompanying them, to see this unbelievable thing for themselves.

It was too late to communicate the result of our reasoning process to the hunting party; but meeting W. O. (Bill) Rencher, secretary to the president of the Florida Citrus Exchange, a little further up the road we told him about it. No Bill Rencher is emphatically not a hunter; but being interested in testing the correctness of our mental processes he went out on the Apopka marshes late that afternoon. Using an ordinary single-shot, 22-caliber rifle he got his legal bag-limit of ducks in eight minutes.

It is gratifying to us to have our processes of logicking thus tested and proved; and particularly gratifying to have the testimony of Bill Rencher to that effect, for Bill's reputation for accuracy and truthfulness is in citrus circles probably exceeded only by that of H. M. (Mike) Dorsett of the Atlantic Coast Line, and, of course, ourself.

We have just received through the kindness of Senator Fletcher and the U. S. mails (free, penalty for use for private correspondence $300) a charming brochure on the subject of inland waterways transportation, more particularly dealing with the Florida East Coast Canal. It tells of the great desirability of the Government taking over this institution, and other facts very pertinent at about the time the thing was written by Colonel Youngberg in 1928. If you would like a copy, ask for it. And while you are writing will you do us the favor to ask if they have yet gotten out anything concerning that dry Fall of 1913. We would like a copy, when, as and if issued.

The patriarch of modern fruit merchandising, Joseph Gentile, Sr., died recently at his home at Frostproof at the age of 82. The father of Leonard, Lawrence, Joe and Gus, he began with a one-man business, and laid the foundation for the present Gentile Brothers Co. with its hundreds of acres of orchard properties, and a distributing organization as well. His own experience and observation encompassed something like sixty years in the fruit business.

Some are wet and some are dry. Some are so dry that, like the Sahara desert, they do not have to proclaim the fact. Such is J. S. Crutchfield of the American Fruit Growers Inc. And now here is the story that R. B. Woolfolk of Orlando recently brought back from a trip to New York, where in company with some other notables he was J. S. Crutchfield's guest for dinner one evening. The latter took them to a new eating place he had discovered by accident. En route he was loud in its praise; it was run by a Frenchman and the French cookery was delicious. He ordered an elaborate meal for his party. A Pittsburgher among them thought he wanted a cocktail; and presto cocktails were before those who would have htem. The dinner came. It was a wonder. Then a New Yorker thought he wanted wine with his; and forthwith wine was forthcoming for those who would partake. And J. S. Crutchfield paid the bill, for what was probably the first intoxicating liquor he had bought in his life, for the joke was on him. But how is a genuine dry to tell a high class speakeasy on short acquaintance?

One of our admirers, or else some humorist signing himself or herself as such, comments upon the fact that this department "avoids poetry." We indignantly repudiate that idea. We do not avoid poetry, or even turn aside from it. We are not afraid of poetry; we can lay right down and go sound asleep in the midst of almost any epic poem. But we, ourself, are not a poet. We wear our hair short. And this department ordinarily sticks to its own production, however weird or tiring that may be. Poetry has impinged against our consciousness, or what with us passes for consciousness, many the time, but in the impinging has left no lasting impression, with this one exception. We hasten to repeat the exception, just to prove we do not "avoid poetry". We are not certain of the authorship of this little bit of the classics. It is possibly J. Curtis Robinson of Orlando, or E. W. Vickers of Sebastian, or Jess J. Parrish of Titusville, or somebody else, but is that important? It goes like this:

Tobacco is a filthy weed,
I like it!
It satisfies no human need,
I like it!

(Continued on page 17)

BLUE GOOSE NEWS

Monthly News of American Fruit Growers Inc. *Edited by The Growers Service Department*

ORANGE JUICE NOW BIG FOUNTAIN DRINK

During the past year more than thirteen per cent of the orange production of the United States went to supply the demand for orange juice at soda fountains, drug stores, luncheonettes, 5 and 10 cent stores and confectionery stores in this country. It is estimated that more than 13,000 carloads of oranges were thus consumed, following a recent and apparently thorough survey of this phase of fruit consumption.

The popularity of orange juice as a drink has from small beginnings grown within a dozen years to be nationwide, and the use of oranges for juice purposes is steadily and continuously expanding. Lemons long have been used for drink purposes, but already the consumption of oranges has grown to the point where approximately five times more oranges than lemons are now utilized for juice purposes at stores and stands as above mentioned.

In various sections of the country there are at different seasons of the year various favorite drinks at fountains and stands, but the nationwide popularity of orange juice now entitles it to rank as perhaps the national year 'round favorite drink; and as more and more places given over to serving such drinks equip themselves properly to serve orange juice the public shows a willingness to consume more and more orange juice. Reduction in the price at which orange juice thus is sold also plays an important part in increasing its popularity with the public.

The survey in question estimates that more than 1,200,000 individual oranges now are squeezed annually at these drink stands to supply the present demand of a thirsty American public. The reason undoubtedly lies in the health benefits of orange juice, and its universal approval by physicians, in addition to its delicious taste.

WILLIAM H. BAGGS HERE ON AN INSPECTION TRIP

William H. Baggs, Pittsburgh, vice-president and general manager of the national organization of the American Fruit Growers Inc. has just been making one of his periodical inspection trips of the Florida Division.

Arriving in Florida on December 5, Mr. Baggs visited many operations for personal contact, and in addition spent some time in the Orlando offices. He was apparently optimistic concerning the general outlook for Florida citrus fruits this season, though not overlooking the handicap of the present limited buying power of the public; and seemed pleased with the results of citrus sales to date. Under his instructions the entire AFG selling organization has been giving special attention to citrus selling and the results have been very noticeable.

REPORTS CUBAN CITRUS CROP LOSSES VERY HEAVY

Writing from La Gloria, Cuba, under date of November 16 George Terwilliger, secretary of the Cuban Fruit Growers Exchange, makes through the trade press an appeal to the produce trade of the U. S. A. on behalf of the American citrus growers in Cuba as a result of the damage by the hurricane of the preceding week.

He puts the loss of the citrus crop on that part of the island at ninety-five per cent, and doubts that the fruit being salvaged can stand the trip to Havana. He further says: "Many groves have suffered anywhere from a 5 to 30 per cent loss of trees, and those left have been so whipped and scarred that it will be two years at least before we can consider a normal crop again."

He continues: "Our town has been 85 per cent destroyed, and most of the outlying (American) colonists homes have been at least 75 per cent wrecked."

He concludes with an appeal for clothing and supplies for men women and children of the American citrus growing colony in that section.

LIGHTER SHIPMENTS AID TO EARLIER MARKETING

By C. N. Williams, Salesmanager

To and including December 1 Florida had shipped 1,526 cars of oranges against 2,489 last season; 2,390 cars of grapefruit compared with 4,372 last year; 257 carloads of tangerines against 447; and 988 mixed cars contrasted with 1,422 last season. To the same date there had gone forward by motor truck an estimated 761 carloads this season as against 972 carloads by truck last season. This made a total of 5,924 carloads this season as compared with 9,702 carloads last, or 3,778 less carloads of all citrus fruits to move to that date this season than to that time last year.

Meanwhile Texas had sent forward to the same date 1,178 cars of grapefruit as compared with 1,298 last season. Despite a late start Texas had by the first of this month practically caught up with last season's movement, though the total Texas crop is reported as possibly not much more than sixty per cent of last season's volume.

California had moved slightly more northern navels to market by that time than were shipped last season, though crops in that section were reported picking out below earlier estimates; and sizes had been running smaller than was earlier anticipated. Best estimates from the Pacific coast indicate the total navel crops will run slightly smaller than last season, but that the volume of the Valencia crop probably will be larger. However, the Valencia movement does not begin in volume until the Florida crop generally is well out of the way.

It is perhaps significant that beginning about the middle of last month Florida oranges took the lead in the markets and were outselling the new crop navels, whereas last season at the same time conditions were reversed.

Extending the inspection period to December 20, and other conditions have worked to regulate Florida ship-

(Continued on page 2)

Adv.

BLUE GOOSE
NEWS
OF INTEREST to the citrus growers of Florida, each month, contained in four pages of paid advertising from the
AMERICAN FRUIT GROWERS INC.
Florida Division
Sixth Floor, State Bank Bldg.
ORLANDO, FLORIDA

A GOOD START

The beginning of citrus shipping from Florida this season has been auspicious. The growers cannot hope to control or alter the general business conditions of the country, and those conditions remain unsatisfactory. However, our citrus shipping has gotten off to a good start, and results have been generally satisfactory when consideration is given to the muchly reduced buying power of the consuming public.

The Florida citrus crop has been late in maturing. Shipments started off slowly, and with generally unusual attention to the desirability of the fruit sent forward. As a result our fruit has been finding favor with consumers and with the trade; and we are off to a good start.

Deliberate and orderly marketing of the bulk of the crop as it is ready to go should assure for Florida a fairly satisfactory season, when consideration is given to the shortness of the crop here and the reduced volume of competition from some other sections.

Despite the fact that every other sort of foodstuff has declined below pre-war price levels, oranges and grapefruit average well above pre-war prices, which fact is a strong testimonial to the regard which the public has come to hold for them.

When the situation is carefully reviewed it is no wonder that citrus fruits have been selling at prices which generally average lower; but there is reason to wonder at the fact that the public shows a willingness to pay for them at rates which average much higher than those for other articles of diet.

Our shipping season promises to be interesting. It will call for great carefulness, and close attention to the requirements of the buyers. Spot-picking promises to be the order of the day. Shipments must be calculated carefully in accordance with the apparent demand. Things are not going to be easy. But we are off to a good start; and that is cause for considerable encouragement.

LIGHTER SHIPMENTS AID TO EARLIER MARKETING

(Continued from page 1)

ments of oranges with the result that there have been no surplus stocks on the markets. The normal demands of the holiday trade should take care of any increased volume of shipments now, and make for a good market at satisfactory prices.

The grapefruit market in the last half of November was disappointing, but there is every reason for confidence that over the season as a whole the grapefruit market is due to be satisfactory.

Despite lifting the maturity test on tangerines on November 15, shipments to the time this is written continue to be well regulated and the early markets have been satisfactory. Spot picking is going to be absolutely necessary with tangerines. If spot picking is made the general practice and the markets are not flooded with small size fruit, the outlook for tangerines is satisfactory.

FRANK P. BEATY NOW ON ROAD TO RECOVERY

Frank P. Beaty, Cocoa, recently was discharged from the Richmond, Virginia, hospital where he had been undergoing treatment, just about four months from the date of the automobile accident which incapacitated him from his duties as manager of the Cocoa packing house of the American Fruit Growers Inc., and of Mims Growers Inc. at Mims.

However, he must take things easy for some time to come, and will remain under the observation of physicians for a while.

For several weeks the cause of the accident remained a mystery, until Mr. Beaty recovered sufficiently to tell it. His statement was to the effect that he ran into a light rain. He was bending over to close the windshield when the accident occurred with such swiftness that he knew nothing until he very slowly began to regain consciousness after treatment by physicians in the hospital.

Meanwhile operations at Cocoa and Mims have been going forward nicely, thanks to J. A. Haistens, long in the service of the American Fruit Growers Inc. at Cocoa, who stepped back into harness to carry on in Frank Beaty's absence.

FURTHER READJUSTMENTS IN CITRUS FREIGHT RATES

Effective December 5, the emergency freight rates granted to Florida citrus growers by the rail carriers were readjusted to extend to the Mississippi river as far northward as a line running from Memphis to Nashville. This added territory in western Mississippi and Tennessee to which such emergency rates had not previously been extended, but the reduction therein amounts to fifteen per cent from the previously existing rates, and a practically equal territory in western Alabama and eastern Mississippi, and a small slice of central Tennessee was transferred into the new "fifteen per cent territory" which in the earlier emergency reductions had been included in the "twenty-five per cent territory".

On December 17 the rail and steamer carriers will put into effect further reduced freight rates on citrus fruits from Florida shipping points to eastern port cities via rail to Jacksonville and named coastwise steamer services beyond.

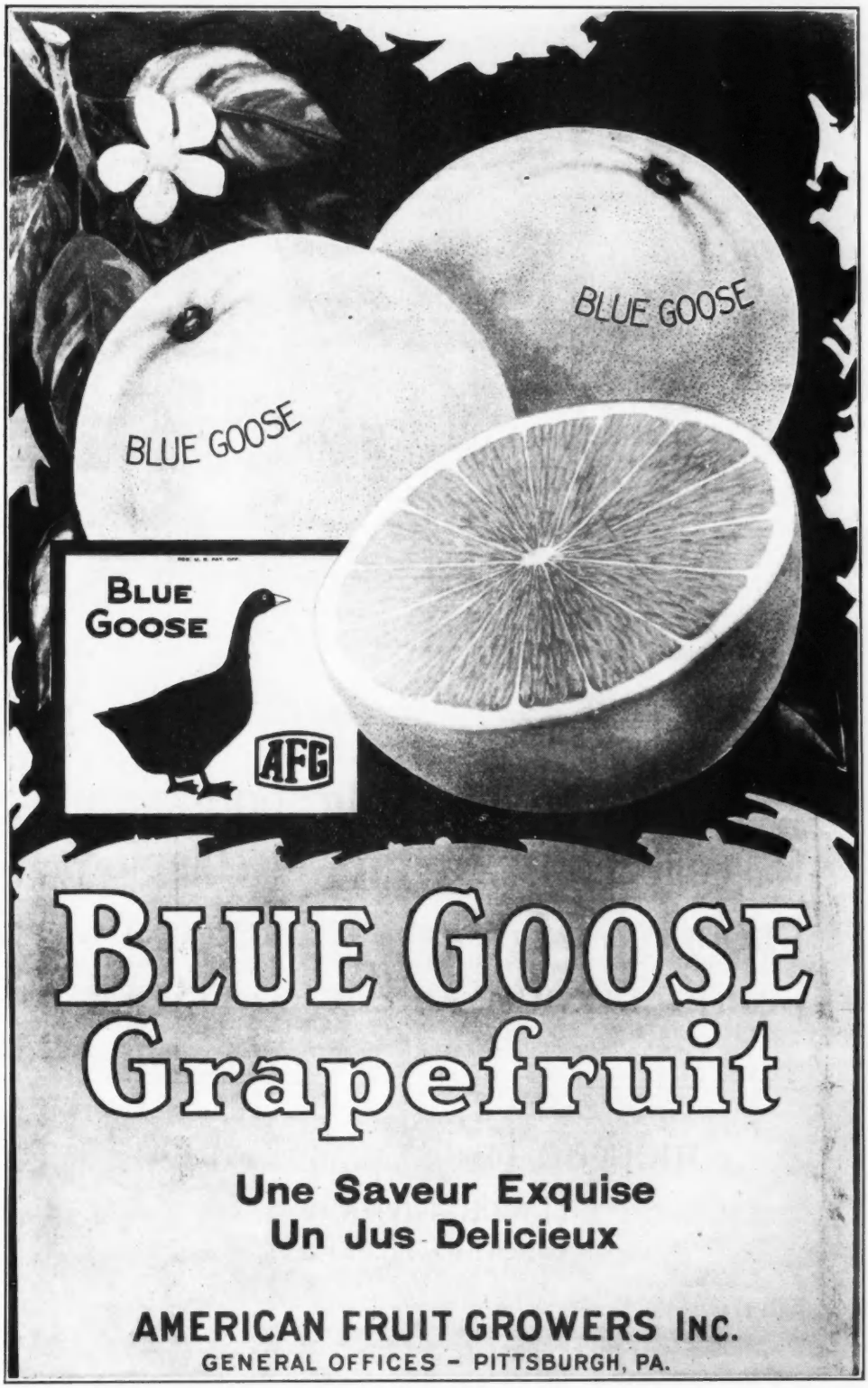
These rates are classed as "experimental". They will expire March 31, unless "sooner cancelled, changed or extended". They apply only on fruit loaded in railroad-owned, ventilated box cars at point of shipment with a minimum of 360 boxes; and are not subject to the usual railroad reconsignment rules.

EXTEND PERIOD FOR MATURITY INSPECTION

On November 26 State Commissioner of Agriculture Nathan Mayo promulgated an order extending the period for maturity inspection of Florida oranges and grapefruit until December 20, instead of December 1 as is usual.

This was because of the uniform late maturity of the citrus crop in all sections of the state; and followed numerous requests upon the commissioner from growing interests and a mass meeting in Winter Haven which discussed the subject. The test period for tangerines was not extended.

Adv.



Getting Fifty Million Frenchmen told-of the delights of Blue Goose Grapefruit. Photographic reproduction in reduced size of one of a series of posters, lithographed in colors, for use in France to advertise Blue Goose Grapefruit.

Adv.

Responsibility

We assume full responsibility for collections. No grower shipping through AFG Service ever lost a penny because of bad collections.

American Fruit Growers Inc.
Florida Division
Orlando, Florida

Adv.

IMPRESSIONS

(Continued from page 12)

It makes you fat; it makes you lean;
It takes the hair right off your bean!
It's the worst darn stuff you ever seen;
I like it!

That horrifying specimen of insect life we call the grampus need make no apology to us humans for living we learned recently, if ever a grampus had apologetic tendencies. We'd always wondered what they were good for, after having learned what they were not good for, until K. C. Moore the Orange county agricultural agent interviewed W. W. Yothers, eminent entomologist at the federal experiment station. Orlando, on the subject. The grampus, he learned, is the world's long, short and middle distance champion consumer of cockroaches, which is no mean distinction in this Florida climate and environment. And now, if you insist upon following that up by inquiring what cockroaches are good for? Cockroaches are good to feed grampuses with.

No. It was not a mistake. We like to end sentences with prepositions when they come at the end of a paragraph. It's a sort of trademark of ours.

Just as when you meet a split-infinitive in The Florida Grower. You know it's Jeff Thomas authoring without having to look at the title.

About the only thing safe to predict in Florida is the weather. Nobody pays any attention to the weather predictions of anyone else in this land of flowers, so one risks nothing with weather forecasts. However, almost everything hereabout moves contrariwise to normal expectations, and the less said in advance the less one has to take back. Forninstance toward the close of last shipping season we predicted that the movement of citrus fruits from Florida by motor truck probably had reached its peak for a number of years to come; and here it is now running slightly ahead of last season's movement to the time of this writing.

Commenting upon this fact over the lunch table to Louis Hakes, manager of the Orange County Citrus Sub-Exchange, we remarked that even though this was the case the movement by trucks did not seem to be covering so wide a radius and so much distant territory as last season.

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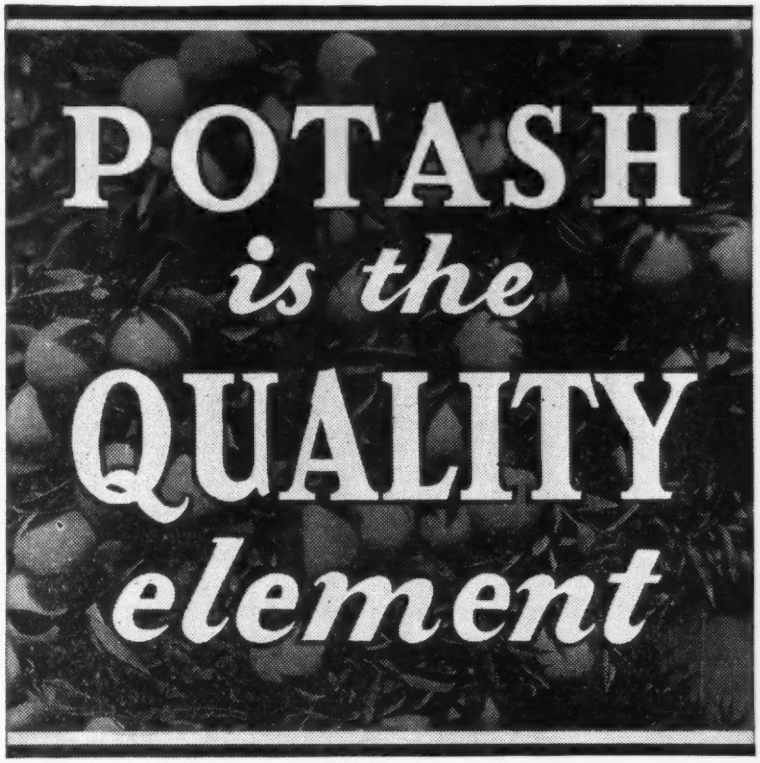


POTASH is the quality-producing element in your fertilizer. It produces smoother, heavier citrus fruits of better sizes containing more juice and sugar. Every time you feed your trees give them ample quantities of fertilizer well-balanced with 10% potash. This maintains the proper plant food reserve and keeps your trees in condition to produce quality crops year after year.

The false economy of using cheap, unbalanced fertilizer usually results in rough, coarse, low-quality fruits produced at high cost per box. Your trees have extra work to do this season. Due to the lateness of the crop they must carry this load six weeks longer than usual. In addition they must store up a reserve for the next crop.

The final figure in your fertilizer analysis indicates its potash content. Make sure your fertilizer is well-balanced with 10% potash. Finish your fruit into the top-grade and build a reserve for bud set for your next crop. IT PAYS!

N. V. POTASH EXPORT MY., Inc., Hurt Bldg., ATLANTA, GA.
J. L. Baskin, Representative, P. O. Box 1051, Orlando, Florida

POTASH PAYS ON ALL CROPS NV PAYS

IMPRESSIONS

(Continued from preceding page)

He thought perhaps this may be due to the fact that in many further rekept busy with the movement of pomoved sections such trucks have been tomatoes, apples, onions and other more local products. Said that some recent correspondence he had seen rather indicated that to be a fact.

Then that afternoon we ran plump into two big, specially built fruit-carrying trucks the home port of which is a far away city in Michigan. So, now, what do you make of that?

Admitting that the business of citrus growing is not so hot these days, let's take a look about us. Arthur Cutten, an authority, says fifteen bushels per acre is the average wheat yield. With wheat at forty cents per bushel, figure that out. Then set up an average of 200 boxes of oranges or grapefruit per acre at present prices, and—well, we guess we are not so badly off after all.

And now H. L. Borland, the sage of Ocala, qualifies as a member of the Grandfathers' Club. As these lines are written word comes that Mr. and Mrs. Harry Borland are en route to Durham, N. C. to visit this, their first, grandchild at the home of their son J. L. Borland, who last year graduated from Harvard Medical School and now is connected with the Duke hospital at Durham.

And that reminds us that on Thanksgiving Day R. B. Woolfolk, Orlando, once more renewed his membership in the aforementioned Grandfathers' Club. This time a son, born to Mr. and Mrs. John B. Gregory of Detroit, and named John Woolfolk Gregory.

Speaking thus of family affairs Dick Mouser, son of Mr. and Mrs. W. H. Mouser of Orlando, who attended the University of Florida, now has gone to work for W. H. Mouser & Co., and is right now busily engaged in learning the fruit business from the ground up.

And we are glad to report Mrs. Frank L. Skelly looking well and very busy hovering the three chicks of girls whom the untimely death of Frank Skelly left fatherless. By the bye, they are getting to be big girls now. And good looking. But what else could be expected of the children of so handsome a father and mother?

WOULD MAKE WINE FROM LOUISIANA ORANGES

New Orleans, Dec. 12—The manufacture of vin bernadine, the famous orange wine of Sazarac and Ramos, as a means of disposing profitably of the poorer grades of Lauisiana's 500,000-box crop each year was advocated by C. C. Dethloff, Plaquemines parish agricultural agent, following rumors here that several New York business men had visited the Buras section with the idea of establishing a plant for the manufacture of the wine after modification of the dry law permits its sale.

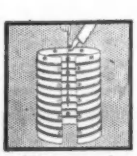
"Probably 40 percent of the crop comes below the U. S. No. 1 standard and could be manufactured profitably into wine once realization of prohibition came about, or into wine bricks similar to those made in California," he said. "This would be about 200,000 boxes out of the yearly crop of about 500,000 boxes. The whole crop is sold now, including culls, but sale of grades could probably be made into wine or wine bricks more profitably than they could be sold as fruit."

Perfectly Preserved Fruit In Beautiful Containers

Cannot Fail To Build A Greater Consumer Demand f o r Citrus Fruit So Packed.

Bell's Collapsible Metal Containers Because of Their Attractive Finish In Beautiful Colors Are Certain To Stimulate Larger Individual Purchases Among The Ultimate Consumers.

12 Bell Containers can be stored in space required for one wooden barrel.



Assembling requires no experience, no machinery or coopers.

Bell's Collapsible Steel Shipping Containers

The Bell's Collapsible Steel Shipping Containers deliver the fruit in better condition than the old style packages, and being sealed during shipment, they prevent contamination to the fruit and decay while in transit.

The containers are perforated to permit proper ventilation for the fruit.

California has always believed in advertising and in fancy packages, and for that reason California fruit is looked upon as being better quality, but everyone knows that Florida has the best citrus fruit in the world, and only needs to beautify the shipping package to be rated as such.

After the container has served its purpose, if it is not desired for a return shipment, it may be used as a wastepaper can or trash can for bedroom, living room or kitchen, as its attractiveness will be an asset to any room in the house.

Already approved by railway, express and steamship lines. Made in various sizes and colors to suit purchaser.

Wire your order today.

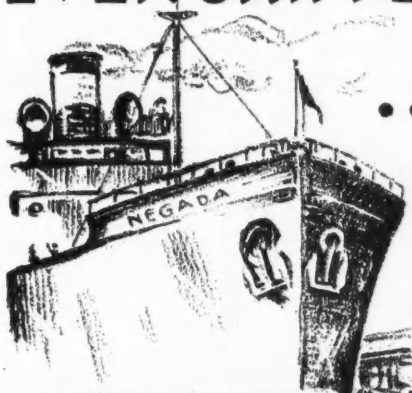
SHIPPING CONTAINER CORPORATION
CAPE CHARLES, VA., U. S. A.

THE HALF BUSHEL GIFT SIZE PACKAGE

The half bushel gift package size, which we call our family size fruit package is selling like wildfire to the shippers of better grade fruit, and is classified by the Express Agents in Florida.

Selling Price
35c
Delivered Anywhere In Florida

The Largest Cargo of Bird Guano
EVER SHIPPED TO THE UNITED STATES



...*and it's* GENUINE HUMBOLDT GUANO

THOUSANDS of tons of Nature's Finest Fertilizer now rolling steadily toward Jacksonville across the Carribean's bright waves. And behind it, ready for shipment from the Bird Islands of South America's Humboldt Current, another cargo of the same rich plant food. ¶ In all, a huge supply of Genuine Humboldt Guano . . . ample to meet the immediate demands of Florida growers who are happy to get Nature's Finest Fertilizer at the lowest prices in history. ¶ There will be no shortage of your favorite fertilizer this year. You can buy it as straight Guano or mixed in Naconite (formerly known as Peruvianite) or in one of the other result-producing NACO brands. ¶ Further, you may specify in the mixed formulas just how much Nitrogen you want derived from Genuine Humboldt Guano . . . this privilege is continued. Never have you been able to buy Genuine Humboldt Guano at such low prices.

If you are in JACKSONVILLE SEE IT UNLOADED!

Not in bags, but in BULK . . . just as it is loaded into the ship from the Bird Islands of South America's Humboldt Current.

NITRATE AGENCIES COMPANY

1401-1407 LYNCH BUILDING

JACKSONVILLE - - FLORIDA

NACO BRAND

Hyde Tells Of Research Results In His Report To The President

Secretary of Agriculture Arthur M. Hyde in his annual report to the President, which was made public today, analyzes the expenditures of the Department of Agriculture and shows what the taxpayers get in return. He says that more than four-fifths of the outlay in the fiscal year 1932 went to the general public rather than primarily to agriculture. Out of every dollar, only 10 cents was spent on the department's ordinary research and service activities. More than two-thirds of the total was allocated to the States. Federal-aid road construction absorbed $212,000,000. Nearly $11,000,000 was for emergency relief loans. Emergency appropriations for road work, to relieve unemployment, and for agricultural relief carried the total expenditure to $306,000,000. In the 8 years prior to 1931, the department's annual expenditures, including road funds, ranged from $125,000,000 to $180,000,000.

Emphasizing the practical value of agricultural research, the Secretary gives several hundred examples of recent scientific achievement in the department, and indicates their commercial application. Plant breeding experiments developed a sugar beet resistant to the curly-top disease; strains of tobacco resistant to black root rot; early maturing rice varieties; rust resistant wheats; and oats resistant to oat smut. Plant disease studies showed how to combat celery mosaic; cabbage yellows; downy mildew on hops; bacterial wilt of corn; and seed-borne diseases of beans. Animal industry investigations developed improved means of dealing with poultry parasites; proved that ticks transmit an infectious disease of cattle called anaplasmosis; and traced certain ailments of hogs to a species of roundworm. Biologists in the department developed a new method of producing asparagin, a rare and expensive acid useful in manufacturing tuberculin. Entomologists discovered that endemic typhus fever is transmitted by a mite that attacks rats; and that a gnat causes pink eye, or conjunctivitis.

Chemists developed two new insecticides, deguelin, and tephrosin, which may be used on vegetation without injuring it. They determined the chemical structure of a valuable insecticide called rotonone, and opened the way to its preparation synthetically. An outstanding chemical discovery showed that the development of rancidity in oil-bearing foods may be prevented by excluding certain light rays. Chemists also found that storing some fruits and vegetables in atmosphere relatively high in carbon dioxide holds rot organisms in check. The treatment may be substituted for pre-cooling.

In studies to develop new uses for farm products, the department developed a process for making high grade cellulose from bagasse, the waste from sugarcane after the sugar has been extracted. High grade cellulose is the basic material for rayon. The department devised a method for producing high quality starch from cull sweetpotatoes; a low cost process for producing calcium gluconate, a medicinally valuable compound, by the action of a mold on corn sugar; and a new and cheap process for producing extremely pure inulin, a product valuable in the treatment of diabetes. This process uses chicory and may make the chicory crop much more important. Chemical investigations also developed a new fruit product, frozen fruit pulp, which promises to afford a profitable outlet for fruit heretofore graded and sold at a low price.

Secretary Hyde describes some successful plant introductions by the department. These are developing non-competitive crops in the United

(Continued on page 24)

1,000,000 boxes more for

BROGDEX

Latt Maxcy of Frostproof, and Gregg Maxcy of Sebring, between them operating six modern packing houses and packing more than a million boxes of fruit, have signed 3-year contracts for Brogdex.

The Maxcy brothers have been pioneers in the development of our citrus industry and have contributed much to the prestige of Florida fruit in the markets of the country.

They have long recognized the weakness of Florida fruit in the market and in various ways have tried to overcome this fault by using treatments designed to improve the appearance of the fruit as well as to make it keep better.

We know of no better endorsement of Brogdex than that the Maxcys finally turn to it as the most effective means yet discovered that will insure sound delivery, better appearance and longer keeping time.

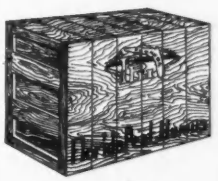
This action by the Maxcys is significant and should give food for the thoughtful consideration of anyone concerned in better prices for our fruit.

Florida Brogdex Distributors
Inc.

B. C. Skinner, President **Dunedin, Florida**

NOW packed in convenient BALES!

Opening new and wide fields of usefulness, FLORIDA PEAT HUMUS, in addition to regular bulk supplies, can be had in bales at slight added cost. Not simply a filler or a moss, but possessing high humus content, and free from weed and grass seeds.



A tight, leakproof, wire-bound veneer package; 17x22x36 inches, containing 12 cubic feet of HUMUS compressed to 7 cubic feet, and weighing 200 pounds.

FLORIDA PEAT HUMUS
Nature's own plant food in readiest available form.

Florida Humus Company **Zellwood, Florida**

SCALE insects can easily be controlled, and at a profit to you.

FICO-60

Florida's own oil emulsion

Will largely eliminate these expensive "boarders" in your grove, make your trees healthy and allow your fertilizer to go to tree and fruit production.

Right now is a good time for a thorough spraying with Fico-60

Florida Insecticide Co. **Apopka, Florida**

Changes In Farm Practices Cut Costs Of Insect Control

TIME OF SEEDING, CROP ROTATION, AND SPECIAL CULTIVATION CUT DOWN INFESTATIONS AND ADD NOTHING TO COST SAYS CHIEF ENTOMOLOGIST IN 1932 REPORT

Control of insect pests by routine farm operations is emphasized in the 1932 report of Dr. C. L. Marlatt, Chief of the Bureau of Entomology, to Secretary of Agriculture Arthur M. Hyde. Seeding or harvesting promptly or a little earlier or later than usual, changing crop rotations, or cultivating in some special way, Doctor Marlatt says, will often reduce the insect pest population. Modifying common farm practices, he adds, costs little, if anything, and the control thus affected cuts down the bill for insecticides.

The Chief Entomologist cites several examples of insect control by farm routine. Early planting in well-plowed land minimizes grasshopper injury to small grains. Deep plowing, with complete clean-up of fields to remove all debris, is the best way to control the corn borer. Early fall clean-up of stalks and bolls in cotton fields, with deep plowing, followed by flooding, destroys overwintering quarters helps eradicate the strawberry weevil. Cultivation of vineyards in such a way that the cocoons of the grape berry moth are exposed through the winter and covered with soil during the emergence period safeguards the grape crop. Strict adherence to a special system of crop rotation reduces the number of wireworms infesting truck crops. Recommendations for these and other modified farm practices are based on detailed studies of insect pests continued by the Bureau of Entomology year after year.

Warnings of insect outbreaks, made possible by entomological surveys, also play an important part in insect control. In 1932 the outstanding campaign planned to meet such an invasion was launched against grasshoppers, which, the surveys showed, would repeat in 1932 their destructive activities of 1931 unless stopped by the weather or timely control measures. As the weather could not be forecast far enough ahead, a campaign to destroy the young hoppers before they had time to get away from the areas where their eggs were concentrated in large numbers was inaugurated. Fortunately, however, cold, wet weather over much of the infested territory caused the early death of many of the young grasshoppers in the hatching fields and provided luxuriant weed growth by roadsides and in fence rows to feed the survivors. Where the weather was favorable to grasshopper growth, poisoned bran bait was spread over the infested land. The combination of providential weather and the extensive use of the poisoned bait, Doctor Marlatt observes, prevented serious general losses from grasshoppers this year.

In their search for insecticides to replace arsenicals, Government entomologists found certain fluorine compounds successful against the plum curculio. They found also that barium fluosilicate, applied in a new way, controls the flea bettle on shade-grown tobacco with little injury to the plants. Nicotine sulphate in a poison bait proved effective against the Mexican fruit fly, and evidence that nicotine tannate may become a good insecticide for the codling moth was accumulated.

Of the fumigation methods tested in laboratory and field, the chloropicrin treatment of grain in elevator bins and an individual-pack fumigation of dried fruit with a mixture of ethylene oxide and carbon dioxide seem of special benefit to the industries concerned.

Promising parasites to aid in controlling the European corn borer, the Japanese beetle, the oriental fruit moth, the gray sugarcane mealybug, and other important insect pests were introduced from abroad. Liberations of those established in other years gave excellent results in many fields, orchards, and groves.

An improved Japanese beetle trap and an illuminated trap for Asiatic beetles, which fly by night, are among the aids to insect study and control developed in the Bureau of Entomology this year.

HYDE REMOVES RED DATE SCALE FROM QUARANTINE

Modification of the date scale quarantine to remove restrictions because of the red date scale in certain parts of Arizona, California, and Texas, was announced recently by Secretary of Agriculture Hyde, effective December 1.

The localities affected are Imperial County and that part of Riverside County east of the San Bernardino meridian, California; Yuma, Maricopa, and Pinal Counties in Arizona, and Webb County, Texas.

Under the present modification, the quarantine, after December 1, will apply solely to the insect known as the Parlatoria scale (Parlatoria blanchardi). Since its issuance in 1913 this quarantine has applied to both that scale and the red date scale (Phoenicococcus marlatti). The latter insect will no longer be considered in issuing permits, and restrictions will hereafter apply only to Parlatoria scale infestations.

These two pests were introduced at about the time commercial date growing began in this country. It became clear ten or fifteen years ago that eradication of the Parlatoria scale would be necessary if date growing were to become commercially successful in the United States. An eradication campaign was carried on against this scale. This is now approaching conclusion.

In the meantime, however, the red date scale, or the Phoenicococcus scale, has proved to be of much less economic importance and growers have found that control measures do not appear to be necessary. While this scale occurs and persists on the leaf bases and fruit stems, the damage does not seem to affect the success of the date industry.

CLOTHES REMODELED

Miami, Fla.—Nearly 3,000 garments have been remodeled recently by Dade County home demonstration club members and 4-H club girls, reports Miss Pansy I. Horton, home demonstration agent.

Plant Quarantine Effective Strong Says In Annual Report

Discovery of the pink bollworm in Florida is an important and serious development of the year, says Lee A. Strong, Chief of the Plant Quarantine and Control Administration, in his annual report to Secretary of Agriculture Hyde, made public recently. Since July 1, this part of the Department of Agriculture has been known as the Bureau of Plant Quarantine.

The pink bollworm and the cotton boll weevil are the two most injurious cotton pests, says Mr. Strong, but the pink bollworm has not been known to occur in the main Cotton Belt of the United States since the completion of the eradication campaign in southern Texas and Louisiana about ten years ago. It is found in Mexico and in some of the southwestern irrigated sections of the United States, but quarantine action has kept it out of the main Cotton Belt. In Florida most of the pink bollworms are on wild cotton growing on the Keys and on the Atlantic and Gulf Coasts. A few specimens were found recently in cultivated cotton in northern Florida, said Mr. Strong supplementing the report, and a quarantine has been issued covering that section. The department hopes to eradicate this pest in Florida. The report also outlines progress in the extermination of the pink bollworm in the irrigated regions of Arizona and New Mexico, and the methods used to prevent its spread from those regions and from the Rio Grande and Pecos Valleys of Texas.

The Mexican fruit fly in the lower Rio Grande Valley of Texas required special attention last year. More of these flies were discovered there in the late winter and early spring of 1932 than in previous seasons. The infestations were still too light to cause direct damage of economic importance but they were scattered throughout the length of the Valley. Supressive measures included the elimination of summer host fruits (which had been the regular practice for the last five years); a poison bait spray to kill adult fruit flies in summer; and the prevention of spread through special restrictions on the shipment of susceptible fruit. The department is cooperating with Mexico in the supression of this insect on both sides of the Rio Grande.

The gipsy moth has been eradicated from New Jersey. This insect infested more than 400 square miles in New Jersey and it required about ten years to exterminate it. No trace of the moth has been found in New Jersery since May, 1929, and the extermination is now considered complete. The success of this work, Mr. Strong says, conclusively demonstrated the soundness of the methods employed and showed that it is entirely feasible to eradicate this insect from large areas when work is undertaken vigorously, with trained personnel and with sufficient funds. The Federal Government and the Department of Conservation of the State of New York are now cooperating to eradicate this pest from Long Island.

European corn borer activities, inluding the suppression of several outlying infestations in Indiana, Kentucky, Wisconsin, and Virginia, and the retardation of spread by means of quarantines, were continued to the end of the fiscal year on June 30, but immediately thereafter it was found necessary to revoke the quarantine and cancel the regulations, because Federal funds for further enforcement were inadequate. In connection with the prevention of spread of the corn borer, more than 130,000 bushels of farm products originating in the quarantined area and more than 3,000,000 cut flowers and plants were certified for shipment to uninfested sections. More than 499,000 ears of corn were intercepted and transportation from infested to noninfested sections was prevented.

The continued spread of the Japanese beetle in the eastern United States necessitated the extension of the regulated ara, chiefly in eastern New York State. The regulated area now comprises 61,339 square miles. The most outlying points of infestation are, however, still less than 500 miles from the points at which the infestation was originally discovered in western New Jersey fifteen years ago. Spread to other sections of the United States has been prevented by the treatment of shipments of plants, plant products, and soil sent from the eastern infected territory to other parts of the United States. On the basis of previous records of farm products inspection, it was considered practicable to reduce materially the number of fruits and vegetables under regulation and to eliminate entirely restrictions on the movement of grain and forage crops. The regulations were revised accordingly, effective last January.

This report also discuses the progress in exterminating the Parlatoria date scale from the United States, and the prevention of spread of the white pine blister rust, the satin moth, the phony disease of peach, the Thurberia weevil, narcissus bulb pests, black stem rust of grains, and the Woodgate rust.

Of note in the administration of foreign plant quarantines, says Mr. Strong, has been a definite decrease in importations from abroad of nursery stock and other plant propagating materials, not so much in the number of importations as in average quantities. Accompanying this reduction in average quantity of the shipments, more frequent use has been made of the privilege of mail shipment for the more numerous smaller lots.

The necessity for constant vigilance in order to prevent the introduction of foreign pests is well illustrated, says the Chief of the Administration, by the records of the port inspection.

BEAN

Deep Well Turbine Pumps

The new Bean Deep Well Turbine Pump has been designed for agricultural, industrial and municipal pumping service. It embodies all the dependable, durable charistics of the Bean Turbines along with mechanical improvements that give this new pump high efficiency and an extremely broad range of capacity.

Made for 3 to 250 H.P.

Capacity 20 to 4000 gals. per minute. Size 6 to 20 inch.

Write for descriptive circular.

Florida Citrus Machinery Co.
Div. Food Mach'y Corp.
Dunedin, Florida

HYDE TELLS OF RESEARCH RESULTS IN HIS REPORT TO THE PRESIDENT

(Continued from page 20)

States. One promising recent introduction is an early ripening strain of the Satsuma orange. Tung oil trees imported from China are growing well in Florida and the Gulf Coast region. Cotton of Egyptian varieties, grown in Arizona, is meeting increasing demand by the manufacturers of automobile and truck tire casings. In recent years the department has introduced date varieties which promise to be suitable for southern Texas and for home gardens. The Secretary reports also numerous results bearing on the improvement of quality in farm products, particularly meats and dairy products. New high quality lettuce varieties introduced into California have also, says the Secretary, exceptional disease resistant characteristics.

Agricultural research, the Secretary declares, is more ncessary to farmers in bad times than in good, because it helps them to reduce their costs. He brands as a fallacy the notion that agricultural research is not required at present because it tends to aggravate the surplus problem. Discarding science, he says, would mean letting pests and diseases take the crops. This would reduce production and might raise prices; but it would raise costs so much more than the farmers would not benefit. When farmers need to reduce their production, the report says, they should economize on land and labor, not in the use of improved practices. Far from aggravating the surplus problem, scientific methods point the way to its solution by making production more dependable and therefore more easily controlled, the Secretary says.

Reporting the current year's results in agriculture, the Secretary describes the upturn in farm commodity prices during the summer as encouraging, but predicts that farm income this year will be lower than they were in 1931. Agriculture has suffered exceptionally during the depression, he notes, from its customary inability to readjust its production quickly to changing demand. Farm production in the United States in 1931 was about the same as it was in 1928, whereas the production of non-agricultural commodities was about 50 per cent less. This year the component yield of all field crops is about 6 per cent less than it was in 1931, and livestock production about the same as last year.

"The agricultural reaction to the depression," the report says, "was very different from the industrial reaction. This is not said in criticism of farms. Farm production can not be adjusted quickly to changes in demand. This fact is a disadvantage to the individual farmer. But it makes agriculture the great shock absorber and stabilizing influence in hard times. Sustained farm production, though it helps to force prices down, makes life easier for wage earners with reduced incomes, and lessens the burden of unemployment relief. It is necessity, of course, and not philanthropy, that obliges agriculture to fill this role. Nevertheless, agriculture does so, to the substantial benefit of the community. This should be remembered when farmers ask public support for agricultural relief measures."

Secretary Hyde says the projects undertaken by the committees appointed a year ago following a national conference on land utilization "give promise that we shall replace this country's traditional policy of planless agricultural development with a comprehensive and thoroughly integrated program of land utilization. This program envisages better economic utilization of land resources, control of erosion, far sighted provision for future timber and public recreation needs, preservation of wild life, the gradual diversion to other purposes of land submarginal for farming, guidance of proper enterprises in land settlement, and adjustments in local taxation and expenditures. The task will be long and tedious, but a beginning has been made. Already a number of States are developing State land use programs and are co-ordinating them with the national program."

THE VALUE OF RESEARCH TO AGRICULTURE

(Continued from page 9)

million dollars, not for the purpose of research but for the purpose of research, plus aggresive and active protection of present investments amounting to a possible billion dollars.

I do not wish to be understood as advocating, as a whole, enlarged expenditures by the State of Florida.

I believe that the only remedy for the business depression in which we now find ourselves is self denial, thoughtful and conscieentious hard work, reduced indivdual debts and reduced public expenditures. But I do believe that in the expenditure of public funds first things should come first. Florida has spent with a prodigal hand in the building of a road system beyond compare in the whole nation. The Florida farmer does not want increased production of many of the present crops, but he does want new markets; he does want new crops, which he can grow without competition with those already grown; he does want new uses, thus developing new markets for his products; he does want to produce at a lowered cost; he does want to more cheaply control insect pests and plant diseases with which he now has to cope; he does want as nearly as humanly possible to be freed from the hazards of new plant pests and diseases; he does want to increase the quality of the products now being produced. In achieving these ends the hand of research holds the trump cards. The surfaces of Florida's possibilities as an agricultural State has been only slightly scratched.

If Florida is to become great among the outstanding American States she will do so by reason of her development of the soil and its products and those manufacturers necessarily incident to agriculture. Let us combine our forces to make Florida great.

FOR SALE

Lists of Florida Citrus Growers compiled from recent survey of groves, arranged by counties. Name, address, acreage and legal description.

Also list wealthy residents of Florida.

W. L. Lamar
P. O. Box 333
JACKSONVILLE, FLA.

The Improved
RIVERSIDE
Truck-Deciduous- & Citrus Heater
It Kills Frost at little Cost

MILLIONS
Are in Use....
Write for Descriptive Matter

RIVERSIDE SHEET METAL WORKS, INC.
RIVERSIDE, CALIFORNIA

D. V. Webb. — Sales Agent
61 W. Jefferson St., Orlando, Florida
Stock of Heaters Now On Hand at Orlando

SATSUMA'S IN LOUISIANA

Oakdale, La., Dec. 12—The Satsuma orange in this vicinity has made an outstanding comeback this year. During the winter of 1929-30 a severe freeze killed all trees to the ground, but after two years' growth they are producing again. This year a number of orchards are averaging 200 oranges to a tree.

When we say.. **AMMO-PHOS HIGH ANALYSIS FERTILIZERS are Superior...** *we tell you why* ···

1st —there is the *advantage of high analysis itself*—lower costs of hauling, handling and applying.

2nd —there is the *advantage of superior ingredients.* The materials used in Ammo-Phos High-Analysis Fertilizers are superior because:

The *phosphoric acid* of Ammo-Phos, the principal ingredient, is *the most readily available form of phosphoric acid on the market.* Applied on the surface, it readily moves downward into the root-zone before being absorbed by the soil.

The *nitrogen* is *in the form of ammonia.* Experiments prove that ammonia forms of nitrogen are much *less liable to loss by leaching* then are the nitrate forms. Ammonia nitrogen is gradually changed to the nitrate form and is delivered to the plant in proportion to its need for this material.

In our Florida-made Ammo-Phos High-Analysis Complete Fertilizers, *potash* is added in the right proportions to meet the needs of the plants for this essential fertilizing element.

THE KILGORE SEED CO., Plant City, Florida

Kilgore Stores located at Plant City, Belle Glade, Gainesville, Homestead, Leesburg, Miami, Pahokee, Palmetto, Pompano, Sanford, Vero Beach, Wauchula

AMMO-PHOS High-Analysis Fertilizers Contain More Than 30% Plant Food

The Best Market In Florida

Is made up of the citrus growers of this state.

The logical medium through which to appeal to this group is

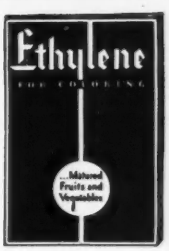
The Citrus Industry

because it is addressed solely to this group of readers.

A lot of advertisers have already learned this.

—A trial will convince you of the wisdom of this course.

A FREE BOOK EVERY GROWER AND SHIPPER SHOULD HAVE



CONTAINS complete information on ETHYLENE—the magic gas which hastens ripening of matured fruits. Learn how to profit with it. Ethylene increases profits, reduces loss, saves time. Write for your copy of "Ethylene for Coloring Matured Fruits and Vegetables" *today*.

CARBIDE AND CARBON CHEMICALS CORPORATION

30 East 42nd Street, New York City
1310 Santee Street, Los Angeles
114 Sansome Street, San Francisco, California

Warehouses in Los Angeles, Tampa, Jacksonville, and other principal cities

Units of Union Carbide UCC *and Carbon Corporation*

CLASSIFIED Advertisments

The rate for advertisements of this nature is only five cents per word for each insertion. You may count the number of words you have, multiply it by five, and you will have the cost of the advertisement for one insertion. Multiply this by the total number of insertions desired and you will have the total cost. This rate is so low that we cannot charge classified accounts, and would, therefore, appreciate a remittance with order. No advertisement accepted for less than 50 cents.

MISCELLANEOUS

DUSTER — Niagara, Air-Cooled engine Steel truck-mounted. Nearly new. Half price. Samuel Kidder, Monticello, Fla.

SEEDS—ROUGH LEMON, SOUR ORANGE, CLEOPATRA. Pure, fresh, good germination. Also seedlings lineout size. De Soto Nurseries, DeSoto City, Fla.

HIGH BLOOD PRESSURE easily, inexpensively overcome, without drugs. Send address. Dr. J. B. Stokes, Mohawk, Fla.

RAISE PIGEONS—Profit and pleasure. Illustrated descriptive catalogue postage six cents. Vrana Farms, Box 314a, Clayton, Missouri.

CROTALARIA SPECTABILIS—Seed for sale. New crop, well cured, bright and clean. Price 25c per pound in 100 pound lots and over, 30c per pound in less quantities, f. o. b. Hastings, Bunnell, Lowell and San Antonio, Florida. F. M. LEONARD & COMPANY, Hastings, Florida.

SCENIC HIGHWAY NURSERIES has a large stock of early and late grapefruit and oranges. One, two and three year buds. This nursery has been operated since 1883 by G. H. Gibbons, Waverly, Fla.

FANCY ABAKKA pineapple plants. R. A. Saeger, Ankona, Florida.

ORANGE PACKERS ATTENTION — Two chemical transparent flexible orange coating processes for sale; royalty or license basis. Patent pending. Dr. C. V. Berry, 251 West 111th Street, New York City.

PUREBRED PULLETS FOR SALE—White Leghorns and Anconas ready to ship. Barred Rocks and R. I. Reds shortly. Several hundred yearling White Leghorn hens now laying 70%. Write or wire for prices. C. A. Norman, Dr. 1440, Knoxville, Tenn.

LAREDO SOY BEANS, considered free from nematode, excellent for hay and soil improvement. Write the Baldwin County Seed Growers Association, Loxley, Alabama, for prices.

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NEW COMMERCIAL lemon for Florida, the Perrine; proven. All residents need yard trees, keeping Florida money at home. Booking orders for budded stock for Winter delivery. DeSoto Nurseries, DeSoto City, Fla.

WANTED—To hear from owner of land for sale. O. Hawley, Baldwin, Wis.

SATSUMA BUDWOOD from Bearing Trees. Hills Fruit Farm, Panama City, Fla.

BUDDED trees new Florida commercial lemon, proven, thin skinned, juicy, scab immune. Also rough lemon, sour orange and Cleopatra seed and liningout seedlings. DeSoto Nurseries, DeSoto City, Fla.

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WANTED—To hear from owner having good farm for sale. Cash price, particulars, John Black, Chippewa Falls, Wisconsin.

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